

TWO NEW SPECIES OF THE TRIBE EUCOSMINI
(TORTRICIDAE) CLOSELY RELATED TO
PHANETA GRANULATANA (KEARFOTT)

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ABSTRACT. *Phaneta linitipunctana* and *Phaneta argutipunctana* are described and imagines and male and female genitalia are figured. *Phaneta granulata* imagines and genitalia are also figured.

***Phaneta linitipunctana*, new species**
(Figs. 1-7)

Head. Front and vertex light ochreous. Labial palpi exceeding front by $2\frac{1}{2}$ eye diameters, light ochreous, with brushlike 2nd segment obscuring blackish 3rd segment. Antennae simple, light ochreous.

Thorax. Light ochreous with fulvous spots on patagia and mesonotum.

Forewing (Figs. 1-4). Ground color light ochreous with extensive fulvous maculation, which, in well marked examples shows a tendency to form vertical rows. On the basal third, extending from dorsum to $\frac{2}{3}$ the distance to costa, the fulvous markings are heavier, forming an ill-defined patch, the outer margin of which is angled slightly outward from dorsum. A narrow streak of ground color extends along the fold, interrupting the fulvous maculation. Ocelloid patch with central area lighter than ground, with a pearly luster, and bearing a weak scattering of black scales, tending to form three horizontal dashes. Along upper margin of ocelloid patch is a small elongate patch composed of small flat, white tipped brown scales. Fringe consists of two bands, the inner band fairly broad and composed of scales having a whitish base and tip with a dark brown center; the outer band is ochreous.

Hindwing. Light fuscous. Fringe with fuscous inner band and ochreous outer band.

Length of forewing. Males ($n = 12$): 6.6-8.3 mm, average 7.3 mm. Females ($n = 9$): 7.3-8.7 mm, average 8.0 mm.

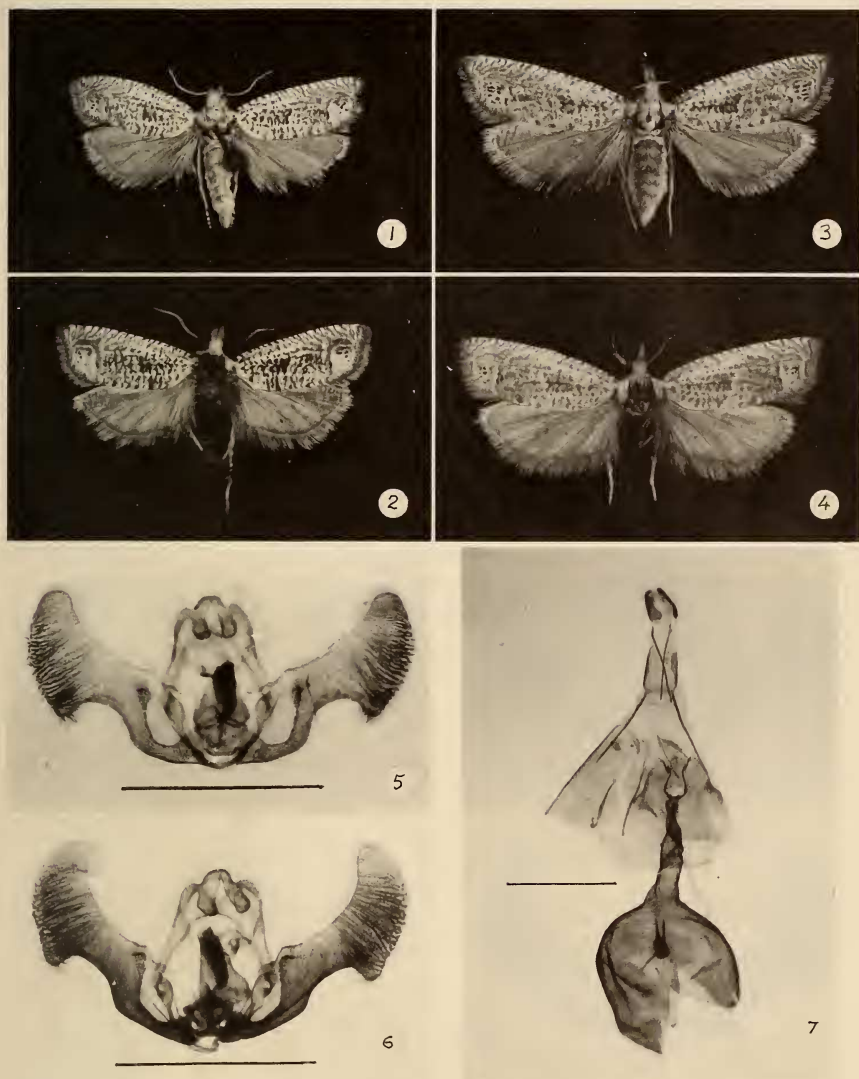
Venation. Hindwing: M3 and Cu1 stalked for $\frac{1}{3}$ the length of Cu1. Rs and M1 approximate for $\frac{1}{4}$ the length of M1.

Male genitalia. As in Figs. 5 and 6.

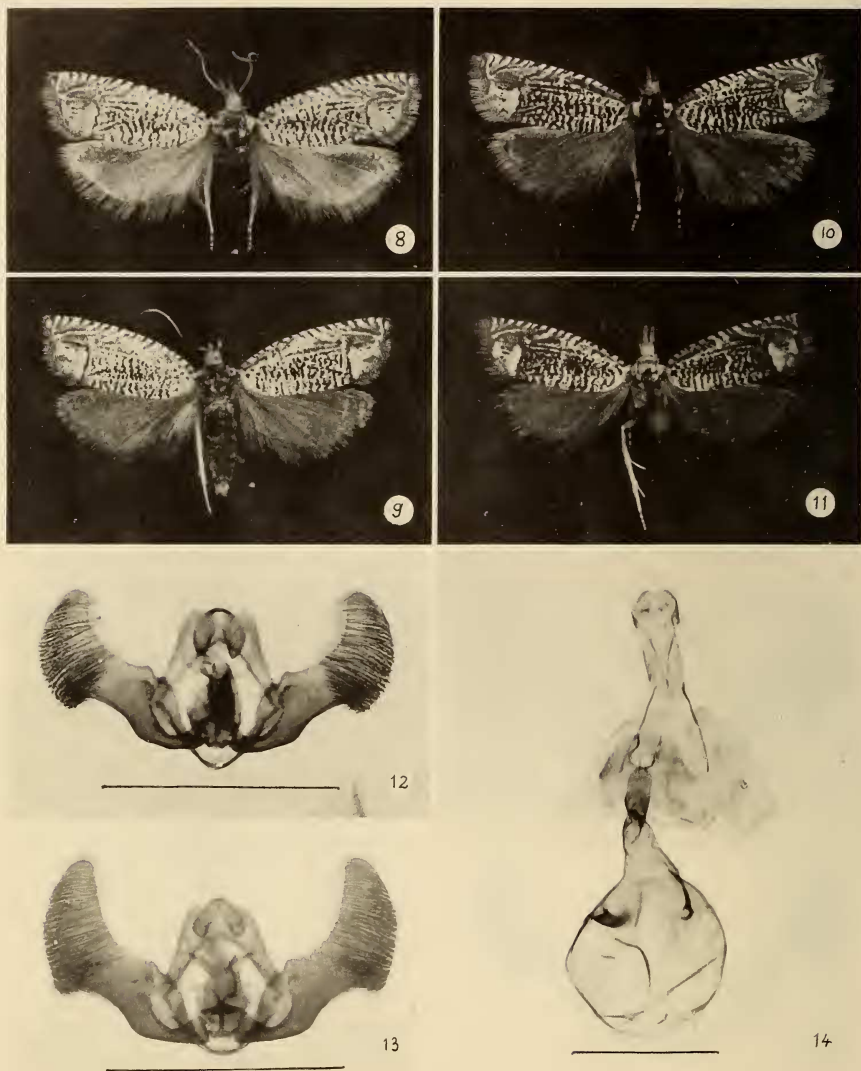
Female genitalia. As in Fig. 7.

Holotype. Male, Nueces Co., Texas, North Padre Island, 9-IX-74, slide A.B. 4342, collected by A. & M. E. Blanchard and deposited in the National Museum of Natural History.

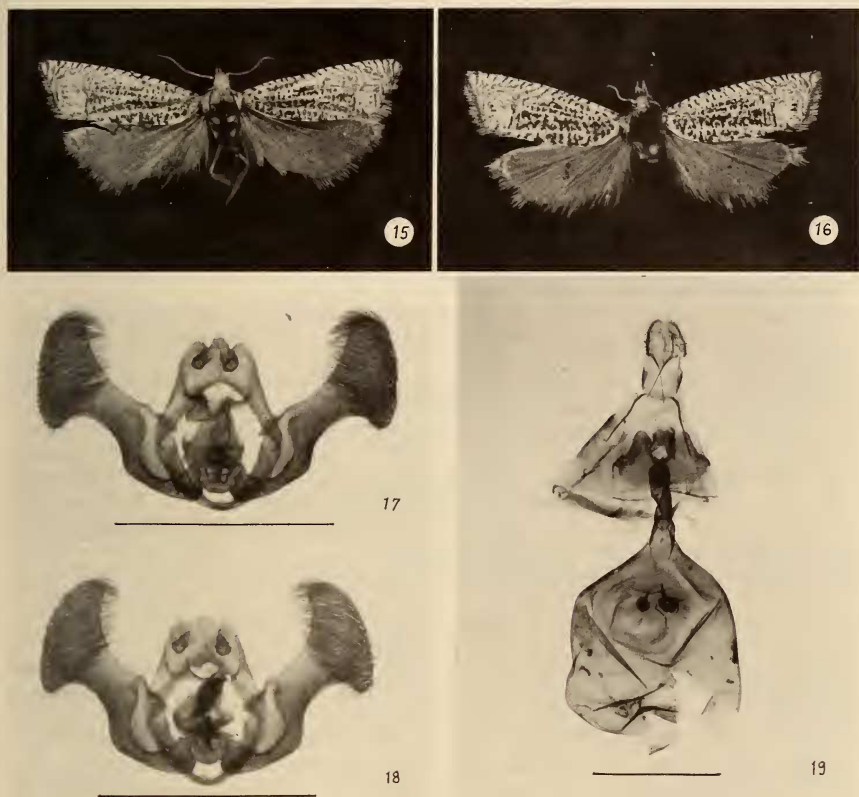
Paratypes. Hemphill Co., Texas, Canadian, 13-VIII-71, 2 males (slides A.B. 2905, 2844), 2 females (slide A.B. 4999), 15-VIII-71, 3 females (slides A.B. 2845, 4344, 5053); Nueces Co., Texas, North Padre Island, 9-IX-74, 3 males (slide A.B. 4343), 29-IX-75, 1 male, 17-VIII-76, 1 male (slide A.B. 4306), 24-IX-79, 2 males (slide A.B. 5028), all collected by A. & M. E. Blanchard; Nueces Co., Texas, North Padre Island, 12-X-79, 2 males (slides ECK 197, 199), 1 female; Cameron Co., Texas, 10 miles west of Brownsville, 13-X-79, 1 female, all collected by E. C. Knudson.



FIGS. 1-7. *Phaneta linitipunctana*: 1, paratype male, North Padre Island, Nueces Co., Texas, 9-IX-74; 2, holotype male, same data, slide A.B. 4342; 3, paratype female, Canadian, Hemphill Co., Texas, 13-VIII-71; 4, paratype female, same locality, 15-VIII-71, slide A.B. 4344 (all four adults same scale); 5, male genitalia of holotype, slide A.B. 4342; 6, male genitalia of paratype, slide A.B. 4306, North Padre Island, Nueces Co., Texas, 17-VIII-76; 7, female genitalia of paratype, slide A.B. 5053, Canadian, Hemphill Co., Texas, 15-VIII-71. The segments in Figs. 5-7 equal 1 mm.



FIGS. 8-14. *Phaneta argutipunctana*: **8**, holotype male, Canadian, Hemphill Co., Texas, 15-VIII-71, slide A.B. 2846; **9**, paratype male, Padre Island Nat. Seashore, Kleberg Co., Texas, 13-X-79; **10**, paratype female, same data as holotype, slide A.B. 5000; **11**, paratype female, Camp Strake, Montgomery Co., Texas, 14-IX-77, slide A.B. 4997 (all four adults same scale); **12**, male genitalia of holotype, slide A.B. 2846; **13**, male genitalia of paratype, slide ECK 198, North Padre Island, Nueces Co., Texas, 12-X-79; **14**, female genitalia of paratype, slide A.B. 4997, same data as Fig. 11. The segments in Figs. 12-14 equal 1 mm.



FIGS. 15-19. *Phaneta granulatanana*: **15**, cotype male, Oslar, Denver, Colo., slide USNM 25200; **16**, cotype female, Colo., 2298, slide USNM 25201; **17**, male genitalia of cotype, slide USNM 25200, same data as Fig. 15; **18**, male genitalia of cotype, slide USNM 25202, Oslar, Denver, Colo.; **19**, female genitalia of cotype, slide USNM 25203, Oslar, Platte Canon, Colo. The segments in Figs. 17-19 equal 1 mm.

***Phaneta argutipunctana*, new species**

(Figs. 8-14)

Head. Front and vertex whitish with some brownish tipped scales on vertex. Labial palpi exceeding front by three eye diameters, whitish ochreous with some grayish scales on 2nd segment. 3rd segment blackish, usually hidden by 2nd. Antennae simple, whitish, with prominent black scaling on inner surface of scape.

Thorax. Patagia and mesonotum whitish with dark brown central patches.

Forewing (Figs. 8-11). Ground color whitish with pearly luster. Maculation consists of strongly contrasted black to dark brown scales generally arranged in evenly spaced, interrupted, vertical rows, except on outer third, where there is a tendency to form longitudinal rows which extend basad from the upper and lower outer margins of the ocelloid patch. Ocelloid patch ochreous with three weak black dashes near center. Along inner margin of ocelloid patch is a short vertical black line. Above ocelloid patch

and indenting it along the lower portion of the outer margin are patches of small, flat, white tipped brown scales. Fringe consists of two bands; the inner band composed of dark brown scales with whitish base and tips, the outer band ochreous. The outer band stops short of the extreme apex, where it is replaced by the bicolored scales of the inner band. Termen is slightly concave.

Hindwing. Light fuscous. Fringe darker fuscous inwardly, whitish outwardly.

Length of forewing. Males ($n = 18$): 4.7–6.4 mm, average 5.7 mm. Females ($n = 14$): 5.2–7.0 mm, average 6.1 mm.

Venation. Hindwing: M3 and Cu1 stalked for $\frac{1}{3}$ the length of Cu1. Rs and M1 approximate for $\frac{1}{4}$ the length of M1.

Male genitalia. As in Figs. 12 and 13.

Female genitalia. As in Fig. 14.

Holotype. Male, Hemphill Co., Texas, Canadian, 15-VIII-71, slide A.B. 2846, collected by A. & M. E. Blanchard and deposited in the National Museum of Natural History.

Paratypes. Hemphill Co., Texas, Canadian, 15-VIII-71, 2 females (slides A.B. 4998, 5000); Nueces Co., Texas, North Padre Island, 30-IX-75, 2 males; Kleberg Co., Texas, Padre Island National Seashore, 13-X-79, 3 males, 2 females (slide A.B. 4996); Montgomery Co., Texas, Camp Strake, Conroe, 7-IX-77, 1 male, 1 female, 14-X-77, 5 males (slides A.B. 4257, 5026), 3 females (slide A.B. 4997); Anderson Co., Texas, Tennessee Colony, 27-VIII-78, 1 male (slide A.B. 5027), all collected by A. & M. E. Blanchard; Nueces Co., Texas, North Padre Island, 1-X-77, 1 female, 12-X-79, 6 males (slide ECK 198), 4 females (slides ECK 196, 200); Cameron Co., Texas, Laguna Atascosa NWR, 13-X-79, 1 female, all collected by E. C. Knudson.

Discussion

These two new species are extremely close to *Phaneta granulata* (Kearfott) (Figs. 15–19) but are separable by characteristics of the imagines and male genitalia. *P. argutipunctana* can be easily diagnosed by the presence of black scaling on the scape, lacking in the other two species. In *granulata* the ground color of the forewing is whitish yellow with maculation consisting of patches of dark brown scales, which tend to be more irregular and not arranged in vertical rows as in *argutipunctana*. The heavier maculation on the basal third of the forewing of *linitipunctana*, which tends to form an angulate basal patch, is lacking in the other two species. In *granulata* the ocelloid patch is poorly defined, due mainly to the absence of the patch of small, flat, white tipped, brown scales above the ocelloid patch, which is found in the other two species. *P. granulata* and *linitipunctana* are the same in average length of forewing; whereas, *argutipunctana* is significantly smaller. The male genitalia of all three species are very similar, but in *argutipunctana* the neck of the valva is broader with a shallower ventral excavation. In *granulata* the uncus tends to be narrower and more compact than in the other two species.

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GENERAL NOTE

OVERWINTERING AGGREGATIONS OF HACKBERRY CATERPILLARS (*ASTEROCAMPA CLYTON*: NYMPHALIDAE)

Hackberry caterpillars (*Asterocampa* spp. Roeder: Nymphalidae) overwinter as mid-instars, presumably in fallen leaves and crevices of bark (Scudder, 1893, Guide to the Commoner Butterflies, Holt, New York). In the fall of 1981 in Gainesville (Alachua Co.), Florida, the preparatory overwintering behavior of *Asterocampa clyton* Boisduval and Leconte was observed. After molting in mid- to late October, the greenish caterpillars moved up to several meters from the molting site to the ends of branches of their host plant, hackberry (*Celtis laevigata* Willdenow). Each group of caterpillars effectively tied a leaf to its branch by repeatedly laying silk over the junction of the branch and leaf petiole. Some groups tied the sides of the leaf together. Eventually the leaf curled and dried around the caterpillars. By late fall most of the leaves still on the trees were those tied by the caterpillars. Occasionally, the aggregation of caterpillars split and, consequently, two or more leaves at the end of a branch were tied, each leaf sheltering some caterpillars. By this time the caterpillars were pinkish-brown, blending with the dead leaves.

To determine the mean number of larvae per overwintering group, 20 groups were collected in December (just after leaf abscission) and 21 groups in late February (just prior to budbreak). Group size was not significantly different ($\bar{x} = 8.7$ larvae ± 1.9 S.E. in December and $\bar{x} = 10.1 \pm 2.7$ S.E. in February; Mann-Whitney *U* test, $P > 0.20$). Similar group size early and late in the overwintering period suggests that probably few individuals were lost from an aggregation during that period.

To determine the effectiveness of tying leaves to the trees for overwintering sites, larval groups were marked in December by attaching numbered, plastic bird bands to the branches. Of 71 groups, 16% were recovered in late February, each with more than half of the leaf and caterpillars present. Fourteen percent of the markers had less than half of a leaf and 70% of the markers had no leaf. None of these had caterpillars. This supports the idea that disappearance from the branches was a larval group event rather than an individual event.

Thus, it appears that hackberry caterpillars overwintered within leaves tied to branch tips on their host plants when more than half of the leaf remained intact and tied to the branch. Tied leaves and aggregations of caterpillars missing from the trees may be a result of avian predation or weather, causing deterioration or detachment of the leaves.

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